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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/522,311

06/30/2005

Kiyotaka Yasuda

8007-1088

5984

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7590

02/04/2009

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EXAMINER

HAN, KWANG S

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

02/04/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/522,311	YASUDA ET AL.	
	Examiner	Art Unit	
	Kwang Han	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 1-12 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-15 and 17-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/25/05, 4/22/05, 9/27/06, 10/11/07, 12/9/08, 2/20/08</u> | 6) <input type="checkbox"/> Other: _____ |

**ELECTRODE FOR SECONDARY BATTERY, PROCESS OF PRODUCING THE
ELECTRODE, AND SECONDARY BATTERY**

Examiner: K. Han SN: 10/522,311 Art Unit: 1795 February 4, 2009

Election/Restrictions

1. Applicant's election without traverse of claims 13-15 and 17-26 in the reply filed on October 14, 2008 is acknowledged.

2. Claims 1-12 and 16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention and species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on October 14, 2008.

Claim Objections

3. Claims 13 and 25 are objected to because of the following informalities: The use of the term "adapted to" suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claims 15, 22, 25, and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 15, it recites “an element having high capability of forming a lithium compound.” “High” is a relative term and it is unclear what applicant regards as the invention. Applicant is asked to clarify.

Regarding claim 22, it recites “particles containing an element having high capability of forming a lithium compound.” “High” is a relative term and it is unclear what applicant regards as the invention. Applicant is asked to clarify.

Regarding claims 25 and 26, it recites “active material having high capability of forming a lithium compound.” and “a material which has a low capability of forming a lithium compound”. “High” and “low” are relative terms and it is unclear what applicant regards as the invention. Applicant is asked to clarify.

Dependant claims have been rejected for the same reasons.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 13, 14, and 17-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawakami et al. (US 6051340).

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Regarding claim 13, Kawakami is directed towards an electrode for a secondary battery [Abstract] comprised of the following:

- a first and a second surface (Figure 4(a) and 4(d)) both with electrical conductivity and brought into contact with an electrolytic solution (Column 11, Lines 38-53),
- an active material layer containing a powdery material (103, active material particles) positioned between the first and second surface (Column 10, Lines 6-33; Figures 4(c) and Figure 4(d)),
- an electrically metal layer (101) in the middle of the thickness direction, and
- the active material is present on both sides of the conductive foil (Figure 4(d); Column 10, Lines 25-33).

Regarding claim 14, Kawakami discloses an example of an anode electrode having a total thickness of between 50 to 110 μ m (Columns 21-24).

Regarding claim 17, Kawakami discloses the electrode as an anode [Abstract].

Regarding claims 18 and 19, Kawakami discloses the surface of the anode to be covered by an insulating film (Column 16, Line 23-26) which allows the lithium ions to pass. The layers are formed from a powdery material formed from a sintered body (Column 5, Lines 22-30) which would inherently have a porous structure (microvoids) allowing the electrolyte to pass.

Regarding claim 20, Kawakami discloses the formation of the layer comprised of the alloyable (active material particles) and nonalloyable metal with electrically

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conductive auxiliary to form the anode which has a current collecting function as a whole (Column 13, Line 53-Column 14, Line 36).

Regarding claim 21, Kawakami teaches examples of the electrode having a total thickness as discussed for claim 14. The insulating film is disclosing as a surface layer formed by an insulating film (Column 16, Line 23-26) which has the property of allowing lithium ion to pass but prohibiting lithium metal. This film would inherently have a fractional thickness within the total thickness of the electrode.

Regarding claim 22, Kawakami discloses active material having a metal capable of being alloyed with lithium (103) (Column 10, Lines 9-10).

Regarding claims 23 and 24, Kawakami discloses forming the active material layer by obtaining a paste (slurry) and surface layers by electroplating (Column 13, Line 11-Column 14, Line 3).

Regarding claim 25, the teachings of Kawakami as discussed above are herein incorporated. Kawakami further teaches a nonalloyable metal (material with "low" capability of forming a lithium compound) in the active material layer (Column 13, Lines 39-46).

Regarding claim 26, Kawakami discloses a multilayer structure of the anode layer where the metal incapable of being alloyed with lithium is at an enhanced content at the anodes surface forming a multilayer surface in combination with the insulating film (Column 5, Lines 13-21; Figure 4d).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawakami et al. as applied to claim 13 above and further in view of Beard (US 5147739).

Regarding claim 15, the teachings of Kawakami as discussed above are herein incorporated. Kawakami discloses active material having a metal capable of being alloyed with lithium (103) (Column 10, Lines 9-10) but is silent towards a metallic lithium layer provided between the conductive foil and the active material layer.

Beard teaches a lithium battery comprised of having an anode with a current collector 13, metallic lithium layer 14, and an active material layer 15 (Figure 1A) for the benefit of providing a electrochemical cell with the full voltage available from a pure lithium anode without the problems of dendritic growth or lithium cycling loss (Column 5,

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Line 25-Column 6, Line 6). It would have been obvious to one of ordinary skill in the art at the time of the invention have a metallic lithium layer between the conductive foil and active material layer of Kawakami because Beard teaches that this configuration provides a battery which has the full voltage available from a pure lithium electrode without the problems of dendritic growth or lithium cycling loss.

Contact/Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang Han whose telephone number is (571) 270-5264. The examiner can normally be reached on Monday through Friday 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on (571) 272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. H./

Examiner, Art Unit 1795

/Dah-Wei D. Yuan/

Supervisory Patent Examiner, Art Unit 1795